Non-linear processes in the XUV: An advanced tool for attosecond pulse metrology and applications

D.Charalambidis
ELI-ALPS, Szeged, Hungary

In the last 12 years we have systematically developed the means for the generation of energetic XUV pulses with 1fs to sub-fs pulse duration. These pulses have been exploited in the temporal characterization of attosecond pulses as well as in the first proof of principle XUV-pump-XUV-probe experiments for the study of 1fs scale electron dynamics in atoms as well as electronic, vibrational and ionization dynamics in molecules. I will review these developments and addresses opportunities that are opening up in these and related scientific topics by the up-coming Extreme Light Infrastructure – Attosecond Light Pulse Source (ELI-ALPS) one of the three pillars of the ESFRI roadmap European Research Infrastructure ELI.